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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/168,688	10/09/98	SHIMURA Y	837.1186/JDH

WM02/0214

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EXAMINER	
SINGH,D	
ART UNIT	**PAPER NUMBER**
2633	9

DATE MAILED: 02/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/168,688	SHIMURA ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☐ Responsive to communication(s) filed on *09 October 1998* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☒ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☒ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) ☒ Notice of References Cited (PTO-892)
15) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyachi et al (US Patent No 5,920,414) in view of Heiling et al (US Patent No 5,136,410).

Regarding claim 1, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

a light source (i.e., LD 10_1) for outputting light beam;

an optical modulator (12_1) for modulating the light beam to output an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not specifically disclose shutting down the optical signal when receiving an alarm. However, Heiling et al teach of shutting down of the optical source (see col. 4, lines 19-27). As disclosed in column 4, lines 19-41, the system of Heiling et al provides safety features, meets safety standards and automatically restore power to laser upon

determining that the lines is operationally safe. Since shutting down of optical source is well known, as evidence by Heiling et al, it would have been obvious to an artisan of ordinary skill at the time of the invention to use the control of Miyachi et al to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Regarding claim 2, as shown in Fig. 7, Miyachi shows a circuit (bias circuit (16_1) for supplying power to the light source (LD) and a monitoring circuit (17_1) for monitoring power of the light source outputting alarm.

Regarding claim 3, as shown in Fig. 7, Miyachi shows a circuit (bias circuit (16_1) for supplying power to the light source (LD) which is a constant supply of current.

Regarding claim 4, Miyachi et al show a wavelength monitor ((40) shown in Fig. 9) to detect wavelength of the light beam and the circuit for outputting an alarm (48).

Regarding claim 5, as discussed above, Miyachi et al monitor the wavelength of the light beam in order to maintain the wavelength constant and reduce noise.

Regarding claim 6, Miyachi et al show that the light source is a laser diode (LD, see col. 9, lines 13) and the controlling means comprise means for controlling the temperature of the laser diodes (see col. 5, lines 42-51).

Regarding claims 7 and 8, the combination of Miyachi et al and Heiling et al differs from these claims in that the combination does not show the arrangement of the wavelength monitor in a specific order. However, Miyachi in Fig. 11 clearly shows a

feedback loop for controlling the wavelength of laser. Therefore it would have been obvious for an artisan of ordinary skill in the art at the time of the invention to use the wavelength monitor to use the wavelength monitor output for feedback loop in order to maintain a constant wavelength and reduce noise.

Regarding claim 9, as shown in Fig. 9, Miyachi et al show that the laser diode (LD) is outputting a forward beam which is supplied to the optical modulator (as shown in Fig. 1, the optical modulator is connected to the front of the laser diode (LD)) and a backward beam which is supplied to the monitoring section (as shown in Fig. 9, monitoring section (17_1) is connected to the back of the laser diode (LD)).

Regarding claim 10, as shown in Fig. 9, Miyachi et al disclose an optical element (47) for receiving the optical signal output from the optical modulator (optical signal coming out of the optical modulator is multiplexed by multiplexer (13) and is coupled to the wavelength monitor section (40) which is received by the optical element (47)) and means for controlling the optical elements (40).

Regarding claims 11-13 and 16-18, the combination of Miyachi et al and Heiling et al differs from these claims in that the combination does not show disclose a specific type of modulator. However, Mach-Zehnder and electroabsorption modulators are well known modulator, therefore it would have been obvious for an artisan of ordinary skill at the time of the invention to provide either Mach-Zehnder or electroabsorption modulator in order have maximal signal to noise ratio. This supporting rationale is based on a recognition that the claimed differences exist not as a result of an attempt by applicant

to solve a problem but merely amounts to selection of expedients known to the artisan of ordinary skill as design choices.

Regarding claim 14, Miyachi et al disclose an optical amplifier (141) as shown in Fig. 23 and see col. 21, lines 48-51.

Regarding claim 15, as discussed above, the combination of Miyachi et al and Heiling et al discloses shutting down the optical source (see claim 1).

Regarding claim 19, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

a plurality of optical sender (elements 10_1, 11_1, 12_1, can be considered as an optical sender 1, elements 10_2, 11_2, 12_2, can be considered as an optical sender 2);

an optical multiplexer (13) for receiving the optical signal;

wherein each of the optical senders comprise:

a light source (i.e., LD 10_1) for outputting light beam;

an optical modulator (12_1) for modulating the light beam to output an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not specifically disclose shutting down the optical signal when receiving an alarm. However, Heiling et al teach of shutting down of the optical source (see col. 4, lines 19-27). As disclosed in column 4, lines 19-41, the system of Heiling et al provides safety

features, meets safety standards and automatically restore power to laser upon determining that the lines is operationally safe. Since shutting down of optical source is well known, as evidence by Heiling et al, it would have been obvious to an artisan of ordinary skill at the time of the invention to use the control of Miyachi et al to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Regarding claim 20, Miyachi et al disclose a wavelength division multiplexing (WDM) optical transmission apparatus and optical repeater (as shown in Fig. 1) comprising:

first and second terminal devices (first terminal device is to the left of the optical fiber (OF) and second terminal device is to the right of optical fiber (OF));

optical fiber (OF) for connecting the first and second terminal;

wherein one of the fist and second terminal devices comprises:

a plurality of optical sender (elements 10_1, 11_1, 12_1, can be considered as an optical sender 1, elements 10_2, 11_2, 12_2, can be considered as an optical sender 2);

an optical multiplexer (13) for receiving the optical signal;

wherein each of the optical senders comprise:

a light source (i.e., LD 10_1) for outputting light beam;

an optical modulator (12_1) for modulating the light beam to output an optical signal;

Miyachi et al disclose controlling the optical source (LD) in response to an alarm (see Fig. 4 and col. 5, lines 42-51) and differ from this claim in that Miyachi et al do not specifically disclose shutting down the optical signal when receiving an alarm. However, Heiling et al teach of shutting down of the optical source (see col. 4, lines 19-27). As disclosed in column 4, lines 19-41, the system of Heiling et al provides safety features, meets safety standards and automatically restore power to laser upon determining that the lines is operationally safe. Since shutting down of optical source is well known, as evidence by Heiling et al, it would have been obvious to an artisan of ordinary skill at the time of the invention to use the control of Miyachi et al to shut down the optical source in order to provide safety feature, meet safety standards and automatically restore power to laser upon determining that the lines is operationally safe.

Regarding claim 21, Miyachi et al disclose an optical amplifier (31) arranged along the optical fiber transmission line (see Fig. 5).

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miyazaki et al (US Patent No. 6,040,931) is cited to show optical transmitter, terminal station apparatus having the optical transmitter, and optical communication system.

Roberts (US Patent No. 6,128,111) is cited to shown monitoring of nonlinear effects.

Terahara (US Patent No. 6,134,034) is cited to show apparatus and method for controlling power levels of individual signal lights of a wavelength division multiplexed signal light.

Fatehi et al (US Patent No. 5,801,863) is cited to show maintenance of optical network.

Takehama et al (US Patent No. 6,081,359) is cited to show transmitting apparatus and receiving apparatus for wavelength-division-multiplex signal transmission.

Dugan et al (US Patent No. 6,157,475) is cited to show optical-channel regulator and method.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is 703-306-5619. The examiner can normally be reached on Monday to Friday 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-6296 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

JASON CHAN
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